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Serial No. 09/541,141

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

Applicant gratefully acknowledges the Examiner's statement regarding withdrawal of the finality of the previous Office Action.

The Examiner has rejected claims 1-11 under 35 U.S.C. 103(a) as being unpatentable over DeLuca (US patent 6,464,239) in view of Gliebe (US patent 5,478,199).

Applicant cannot agree with the Examiner, and believes that the Examiner has incorrectly understood the beam modulation technique disclosed in DeLuca.

Firstly, DeLuca does not modulate the undesirable noise sound wave for suppression thereof, but introduces an ultrasonic sound wave to modulate a sound cancelling signal to impart directionality to the sound cancelling signal. DeLuca clearly states in column 2, lines 28-31:

The sound cancelling signal is combined by combiner 60 with an ultrasonic carrier signal from an ultrasonic signal generator 70 to produce a modulated ultrasonic carrier signal, which may be further amplified by combiner 60.

DeLuca uses sound wave modulation to provide a carrier to transmit the sound cancelling signal to a targeted point of noise source, but fails to teach what kind of sound cancellation method is used when the modulated sound cancelling signal arrives at the targeted point of the noise source. DeLuca generally names the noise cancelling signal modulated by the ultrasonic carrier as an "anti-sound beam" which is not new and it would be understood by people skilled in the art that DeLuca's noise cancellation must be based on a normal active-noise-control principle, i.e. the active-noise-control technology. The active-noise-control technology as discussed in Applicant's previously submitted amendments, is not relevant to the present claimed invention. Therefore, DeLuca only

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teaches how to generate a directional anti-sound beam by using ultrasonic waves to modulate and thereby carry the anti-sound beam to target the point of noise source, but does not teach modulation of the primary tone of the noise in order to achieve redistribution of the sound energy of the noise from the frequency of the primary tone to a broad range of side bands, thereby reducing the amplitude of the primary tone of the noise.

Gliebe does not teach a sound wave modulation for suppressing a noise wave. Therefore, the combination of DeLuca and Gliebe does not teach the claimed invention.

Furthermore, DeLuca clearly states in column 2, lines 19-23:

The anti-sound beam, when directed at a sound source reduces the sound generated by object, thus cancelling the sound at the source, rather than in a predetermined space. Thus, other desirable sounds from other sound sources may be heard while undesirable sounds reduced.

DeLuca's noise cancellation method only works for localized point source noise and will not work for aerodynamic spinning tonal modes which are defined within a duct (a space) and are moving therein, rather than a localized point source noise. Gliebe teaches a method for suppressing the aerodynamic spinning tonal noise within an engine duct housing. Therefore, people skilled in the art would not even consider the combination of DeLuca and Gliebe because there is no motivation and no expectation of success. There are no grounds for the Examiner to establish a *prima facia* case of obviousness.

The Examiner's rejection of independent claims 1, 4 and 7 is thus traversed.

Claims 2, 3, 5, 6 and 8-11 depend directly or indirectly from independent claims 1, 4 and 7, respectively, and stand for patentability together with the independent claims. Therefore the dependent claims are allowable for the same reasons as the independent claims.

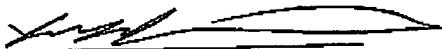
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Applicant believes that for the reasons set forth above, this application is in condition for immediate allowance. Favourable reconsideration and early issuance of the Notice of Allowance are respectfully solicited.

Respectfully submitted,

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